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Open governance systems: Doing more with more

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ABSTRACT

This paper tackles many of the important issues and discussions taking place in Europe and globally about the future of the public sector and how it can use Information and Communication Technology (ICT) to respond innovatively and effectively to some of the acute societal challenges arising from the financial crisis as well as other deeper rooted global problems. These include inequality, poverty, corruption and migration, as well as climate change, loss of habitat and the ageing society. A conceptual framework for open governance systems enabled by ICT is proposed, drawing on evidence and examples from around the world as well as a critical appraisal of both academic and grey literature. The framework constructs a system of open assets, open services and open engagement, and this is used to move the e-government debate forward from a preoccupation with lean and small governments which 'do more with less' to examine the potential for open governance systems to also 'do more with more'. This is achieved by enabling an open government and open public sector, as part of this open governance system, to 'do more by leveraging more' of the existing assets and resources across the whole of society, and not just within the public sector, many of which are unrealised and untapped, so in effect are 'wasted'. The paper argues that efficiencies and productivity improvements are essential at all levels and across all actors, as is maximising both public and private value, but that they must also be seen at the societal level where trade-offs and interactions are required, and not only at the individual actor level.

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1. Introduction and approach

This paper tackles many of the important issues and discussions taking place in Europe and globally about the future of the public sector and how it can use Information and Communication Technology (ICT) to respond innovatively and effectively to the aftermath of the financial crisis as well as address longer term and deeper rooted global challenges. The new agenda for e-government needs to directly embrace these issues in both research and practice, rather than itself remain a 'silo' perspective cut off from broader developments which would make it increasingly irrelevant. There is also much to gain from so doing, and this paper directly addresses this challenge. A conceptual framework for open governance systems enabled by ICT is proposed, drawing on evidence and examples from around the world as well as a critical appraisal of both academic and grey literature. Part of this process was an expert workshop and an online public consultation amongst many interested actors led by the author in the first half of 2013 (European Commission 2013a).

2. Context and literature review

The global financial crisis of 2007–8 has tended to mask the fact that there are longer term and deeper rooted global challenges which preceded it, many of which are becoming more acute. These include increasing inequalities within countries, poverty, corruption, climate change, energy and job shortages, health and education under pressure, rapidly changing demographics (ageing, migration, urbanisation), and governance deficits at all levels. Public services are under severe strain and trust is being lost in governments' ability to collect taxes and provide good regulation. These and other challenges are being targeted by the United Nations' proposed Sustainable Development Goals (SDGs) for 2015–2030,[1] two of which at time of writing include recognition of the need to "build effective, accountable and inclusive institutions at all levels" as well as "strengthen the means of implementation" of the goals. This is an acknowledgement of the important role of the public sector in tackling the global challenges, which, because of their complex interdependencies, also require the collaborative efforts of the whole range of societal actors. In order to address these problems, it is increasingly realised that institutions and governance generally need to be considerably strengthened as the role of the public sector is

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[1] https://sustainabledevelopment.un.org/sdgsproposal (accessed 30 January 2015).

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critical, and this must include changing its forms of cooperation with both private and civil sectors (United Nations, 2013b; Bevir, 2013).

One approach to challenges like poverty and inequality sees the poor and marginalised themselves as a resource in both economic and social terms as producers and innovators rather than merely passive consumers, so that they become assets in solving their own problems. This is seen, for example, in the 'base-of-the-pyramid' (BoP) approach which recognises how local communities in even the poorest countries can create and deliver services and products suited to their own situation, but which is also contingent upon conducive governance systems (Simanis & Hart, 2008; Prahalad, 2005). Concurrently, in the more developed world, ICT is helping to scale up local success stories, give resource poor individuals and small organisations global reach (Anderson, 2006, 2012), and transform social and economic behaviour from being purely incentive-based to one more susceptible to widespread networks and the so-called 'social signal of social media' (Ormerod, 2012). It is also transforming our understanding of what 'assets' are, who owns them and how they are used. The current market system is extremely good at 'sweating' assets on the supply side, so that commercial producers are incentivized to squeeze to maximum extent their financial, human and other assets and thereby increase productivity and performance. However, on the consumption and demand side, there is huge waste resulting from the widespread practice of exclusive asset ownership. In the last decade this is starting to be challenged by a new sharing economy growing from a small base, in which mainly individuals share with others an increasing range of their assets. These include time, skills, competences, tools, buildings, spaces, vehicles, facilities of all types, organisational capacities and even financial resources, much of which is enabled by ICT developments like crowdsourcing and crowdfunding. The sharing economy is starting to supplement exclusive ownership with new forms of common, collective and collaborative ownership. The sharing movement started as mainly non-profit activities but is now spreading to the entrepreneurial and profit sector with examples like ZipCar and Airbnb for renting out shared cars and accommodation space respectively, and which have since grown into global market leaders. In turn, this is threatening incumbent market actors, current legal and regulatory systems as well as the frameworks of trust and ethics we wish to maintain and build (Millard & Carpenter, 2014).

A fundamental issue to consider is how public policy should handle such bottom-up and non-traditional activities which are necessary to help tackle the global challenges. Some researchers see an important role for cooperation between public service providers and social innovators, for example the role of public funding to help social entrepreneurs deliver services for the poor and marginalised (Defourny & Nyssens, 2010). "Inter-organisational collaboration is a way to increase the capacities of organisations and to apply leverage to existing resources so as to solve social problems more effectively by pooling together resources, skills and knowledge" (Harrisson et al., 2012). There is strong evidence and a growing consensus that these approaches are imperative for finding solutions to multi-dimensional challenges such as inequality and sustainable development (Babu and Pinstrup-Andersen, 2009, Soares and Clara, 2012).

Much activity around these issues is being influenced by new bottom-up forms of open innovation and new open business models (Chesbrough, 2003). Many of these focus on the societal challenges, as opposed to purely technological concerns, in which new actors directly participate and especially the direct beneficiaries of such innovations themselves. In Europe as elsewhere, these new trends are today often termed 'social innovation' defined "as new approaches to addressing social needs. They are social in their means and in their ends. They engage and mobilise the beneficiaries and help to transform social relations by improving beneficiaries' access to power and resources." (Tepsie, 2014). A similar set of concepts which has a more explicitly global focus on the poor and the BoP is so-called 'inclusive' or 'frugal innovation', defined as "any innovation that leads to affordable access to quality goods and services creating livelihood opportunities for the excluded population, primarily at the base of the pyramid and on a long term sustainable basis with significant outreach" (Prahalad & Mashelkar, 2010; Mashelkar, 2013). Both social and inclusive/frugal innovation function better in the context of a proactive and collaborative public sector and a conducive legal and regulatory framework, as these and other sources testify. Critical to both these approaches is the necessity for innovations to actually meet real social needs and to do so in a way that involves the whole value chain, and specifically the beneficiaries of the innovation. This provides both challenges and opportunities for the public sector in its traditional role in addressing societal needs, as well as how it relates to other societal actors in meeting these. It is this issue that this paper addresses, and in particular looks at the critical role played by ICT.

The paper also builds directly on the academic literature of e-government and attempts to draw some of the existing strands together in a new synthesis focused around openness and these new forms of innovation on top of, but without replacing, traditional concerns for efficiency and effectiveness. Looking at some of the conceptual paradigms which have had real impact on public sector transformation over the last twenty years in Europe, the 1990s New Public Management approach encompassed inter alia a strong emphasis on the large scale adoption of private sector management disciplines (Hood, 1991). These typically related to measurement, target setting and the outsourcing of some government functions to the private sector which was deemed to be more efficient in fulfilling them. In the 2000s, critics of this approach included Dunleavy and Margetts (2006) as well as Stoker (2006) in his proposals for Public Value Management which linked the changes seen or required in the public sector to networked government and the need for open systems.

Other literature has grown up around and beyond these traditions, notably work on the embeddedness of public sector innovation in the politico-administrative system (Niehaves, 2007), and from a public value[2] perspective, the role of strategic management in government (Moore, 1995). Public value is also examined in the context of ICT enabled public sector reforms (Cordella and Bonina, 2012), and is seen as contributing to making government processes more transparent and accountable through transformational (t)-government and business process reengineering (Weerakkody and Dhillon, 2008; Van Veenstra and Janssen, 2012). Most recently issues of 'lean government', doing more with less and platform-based governance, especially in comparison with e- and t-government, are seen as a new wave which focuses on the orchestration role of government where innovation, experimentation and user requirements are key factors (Janssen and Estevez, 2013).

In the last few years there has also been a burgeoning growth of literature focusing on open government and open governance. For example, McDermott (2012) looked at President Obama's 'Open Government Directive' in 2008 establishing a system of transparency, public participation and collaboration, whilst Lee and Kwak (2012) proposed a five-level open government maturity model for social media-based public engagement in response to Obama's directive. Harrison, Pardo and Cook (2012) examined the concept of open government from an ecosystem perspective as interdependent social systems of actors, organisations, material infrastructures and symbolic resources, and suggested that policy makers need to engage in such strategic ecosystem thinking. More recently, Gascó-Hernández (2014) edited a wide-ranging collection of papers on open government and the opportunities and challenges for public governance. These included papers proposing open government models, their contextual and cultural underpinnings, the development and dynamics of open data and big data for public

[2] There are many established definitions of 'public value', for example "public value refers to the value created by government through services, laws, regulation and other actions" (Kelly et al., 2002). For the present purpose it can be also thought of as similar to the older notions of 'public goods' and 'good governance'.

governance, open government collaboration, and how open government is developing in different countries and in smart cities.

Some clear conclusions emerge from this. Public policy and services need to become more open and innovative as well as efficient and effective. Indeed it is argued in this paper that these attributes are complementary, especially if seen over the medium to longer term, but also that the public sector cannot successfully tackle the global challenges on its own. The paper goes further and argues that the study of open government and open governance must not just look at what is taking place inside the public sector but also at wider developments in society and the manner in which other societal actors are changing their roles and ways of operating. It needs to collaborate, and a powerful tool in this context is ICT. This is the basic message of this paper which examines a new approach to public sector innovation based around the notion of 'open governance systems', and which attempts to unpick its main components as we can presently see them.[3]

3. Conceptual framework for open governance systems which 'do more with more'

3.1. The need for a societal level perspective

As sketched above, the discourse and most literature to date have focused on responses to the crisis which envisage the public sector, enabled and perhaps driven by ICT, as becoming transformed, for example through business process reengineering, as well as shrinking in size and becoming 'lean' in order to "do more with less". As also noted, these trends are well documented by Janssen and Estevez (2013). The present paper argues that the next step, and certainly a complementary perspective, is 'open government' which is itself embedded in broader open governance systems encompassing all of society's actors. In this context, the public sector needs to adapt its roles and relationships with these others actors. But, these adaptations do not insist that the public sector reduces in size or becomes 'lean' although indeed that may happen in some manifestations of the open governance system, but this is not a given nor is it always necessary. Downsizing the public sector, where this happens, is a politico-economic response to specific situations and may not always be relevant nor indeed desirable, although of course it can be so. Assuming that a smaller leaner government is always the answer to every challenge or context is a very fundamentalist approach.

The open governance system, just as in l-government, orchestrates networks of actors to tackle society's needs, but unlike in l-government, the public sector does not thereby always need to become smaller. Instead it leverages and coordinates unrealised and untapped assets and resources, which otherwise lie dormant or need catalysing and are thus in effect "wasted". The public sector does this both internally and across society, so it may need to remain the same size or in some instances even grow larger depending on the context and the challenge. The public sector might flexibly decrease or increase or otherwise transform in size, influence and role in different sectors and localities at different times for different purposes in a constant 'dance' with other actors to maximise public as well as private value across the whole of society. Becoming a 'lean' government is just one option along this continuum, even though the driving features of 'lean' as efficiency and productivity always remain paramount. Instead, such features need to be seen as interlinked between actors across the whole of society and not just confined to the government. Thus, efficiencies and productivity improvements are conceptualised at the societal level over at least the medium-term where trade-offs and interactions are present between actors, not only at the individual actor level.

This is a very important observation. A 'lean' government might indeed save some money in a narrow context over the short-term, but this could lead to overall loss of public value and thus additional costs on society, especially in the longer term, if other actors or actor configurations are not able to produce the value needed in the context of a shrunken public sector. Examples include environmental degradation, social and economic inequalities and in mainstream services like health, care and education, and these would be false economies indeed. As shown below, such a flexible response to address the global challenges is now possible in the context of ICT, although of course political, governance and other issues are also critical. This is not an argument against l-government which may often be relevant, but an argument for flexibility in the context of open governance systems made possible for the first time by ICT. The envisaged open governance systems can thereby be characterised as 'o-government' which can "do more by leveraging more", where the latter "more" is not necessarily within the public sector although it may well be so.

3.2. Recent evidence of the dangers of 'lean-government' as a one-size-fits-all solution

This is not simply a philosophical argument but draws on a range of recent evidence documenting the importance of, and in some cases increased need for, public spending to tackle, for example, the dramatic increases in inequality and poverty seen within most countries over the last thirty years. Clear conclusions are emerging about the significant damage these increases do over the medium term to economic growth as well as societal cohesion, which also has economic as well as social costs that impact everybody. This argument has been made by both the International Fund (IMF, 2014) and the OECD (2014a), neither of which can be considered champions of 'big government', drawing on detailed and exhaustive quantitative and qualitative research. The latter shows that "when income inequality rises, economic growth falls. One reason is that poorer members of society are less able to invest in their education". The study also concludes that rising inequality in the two decades after 1985 cut nine percentage points off UK growth between 1990 and 2000, and that this threat to growth is getting worse as inequality continues to rise.

Related problems of reduced government regulation and oversight, both nationally and at the international level, caused as much by reduced budgets as by politics, have led to high levels of tax evasion and corruption documented both by the European Commission (2014), OECD (2014b). The EC report states that "corruption alone is estimated to cost the EU economy EUR 120 billion per year, just a little less than the annual budget of the European Union." The OECD report underlines this problem by showing that corruption is not just a threat to developing countries when it concludes that "bribes are generally paid to win contracts from state-owned or controlled companies in advanced economies, rather than in the developing world, and most bribe payers and takers are from wealthy countries". Also in 2014, the European Council concluded that there is an urgent need to "invest and prepare our economies for the future by addressing overdue investment needs in transport, energy and telecom infrastructure as well as in energy efficiency, innovation and research, skills, education and innovation; by making full use of EU structural funds; by mobilising the right mix of private and public funding and facilitating long-term investments; by using and developing financial instruments, such as those of the European Investment Bank, in particular for long-term projects; by providing the right regulatory framework for long-term investments." The report added that this should be done in a context which guarantees fairness by combatting tax evasion and tax fraud so that all contribute their fair share (European Council, 2014). On a global basis, poverty and inequality, alongside the need to improve governance systems (see Section 2 above), has also been an increasingly important theme of

[3] The terms 'public sector' and 'government' are in practice used interchangeably in this paper as in many others. The term 'governance' refers to public governance as "the role of governments, working alongside other actors, in building, facilitating and overseeing political, social and economic development. Irrespective of any intrinsic value it might have, public governance is therefore a crucial means to desired development outcomes." (Bevir, 2013).

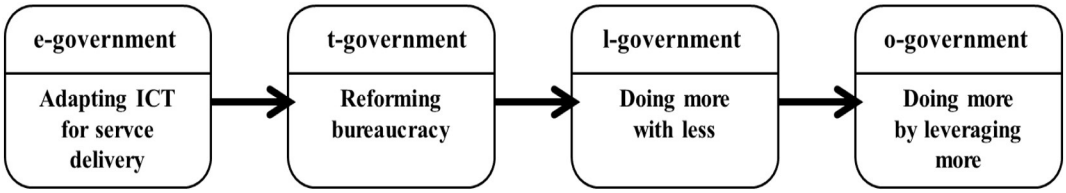

Fig. 1. Four waves of e-government evolution. Adapted from Janssen and Estevez (2013).

the United Nations in its preparation work for the forthcoming SDGs (United Nations, 2013a), and where ICT is seen as an essential tool (United Nations, 2013b).

From an academic perspective, the argument that governments need to tackle inequality in partnership with other stakeholders, lest it undermines social wellbeing and sustainable economic growth, has been led by Richard Wilkinson (Wilkinson, 2005; Wilkinson & Pickett, 2009). This tradition has more recently been elegantly reinforced by Piketty's (2014) analysis of long-run returns on capital and the concentration of wealth in which he calls for stronger and smarter wealth taxation to address the increasing concentration of wealth. Both Wilkinson and Piketty have conducted meta studies based on huge amounts of historical as well as contemporary data. Mazzucato (2013) has done the same in her study of the importance of a highly active government in providing a strong investment framework for, but also itself proactively taking part in, the innovation necessary for many of the fundamental technologies which enable the private sector to innovate and grow. For example, all the main technology innovations which have enabled the iPhone to be so successful were not developed by pioneering entrepreneurs but in public labs, including GPS, the Internet, the world-wide-web, the HTML language and touch screens. Entrepreneurs are essential to see and exploit the commercial opportunities of building blocks such as these that governments provide, alongside investments in physical and human capital infrastructures, but they would rarely be successful without an active state. However, Mazzucato argues that this critical role played by public investment and innovation since 1945 has been seriously under-theorised and under-hyped, leading to the current popular discourse that government just gets in the way of business so always needs to be made as small as possible. Reflecting an argument made by Harrison et al. (2012), Mazzucato calls for renewed focus on an open governance framework creating, supporting and joining ecosystems of non-public actors in which private long-term investment and innovation is just as critical as that undertaken by government.

3.3. Open government and open governance systems

The current, but admittedly still tentative, move from 'l-government' to 'o-government' is illustrated in Fig. 1, which builds on Fig. 2 in Janssen and Estevez (2013), whilst emphasising that the four waves are not mutually exclusive but instead complementary even though a clear progression is envisaged. Open government (o-government) is the sine qua non for ICT-enabled public sector innovation which is today one of the main policy agenda in Europe and elsewhere (for example European Commission, 2013a, 2013b, deriving from European Commission, 2010, as well as the OECD[4]).

It might be argued that Fig. 1 reflects how the successive waves respond to changing perceptions and uses of ICT, so that whereas 'e-government' simply took ICT into an existing system making it more efficient but without much change to its structures and modus operandi, 't-government' was able to use ICT alongside other drivers to transform these characteristics of government so that it became both more efficient and effective. In turn, 'l-government' has been a dramatic response to the financial and economic crisis in the aftermath of 2007–8, whilst today 'o-government' is starting to form a cohesive conceptual framework, body of evidence and policy programme to turn the attention of government to the burgeoning long-term global challenges the world is facing in close collaboration with non-public actors. Indeed, some of these challenges have resulted directly from the financial crisis itself and many governments' immediate response to it.

The main components of 'o-government', as proposed here, are open assets (including open data), open services and open engagement, as sketched in Fig. 2, and are examined in detail below. However for 'o-government', which is an actor-level concept, to be realised, broader societal-wide open governance systems are also necessary which both reach across many parts and levels of the public sector as well to other appropriate actors outside government. In many contexts, open governance is about linking and integrating the worlds inside government, as well as linking and integrating these with the worlds outside government for the specific purpose of creating public value. ICT is a key enabler in making this possible. The open governance system also encompasses open structures, open organisations and open processes. It involves breaking down, or at least cooperation between, silos across different administrations, levels and locations, through pooling and sharing infrastructures, processes, data, assets, resources, content and tools. It implies forms of federation and coordination which balance centralisation and decentralisation as well as top-down and bottom-up approaches. This involves huge challenges technically, politically, legally, organisationally and in terms of working cultures. The vision is of a 'whole-of-government' approach embedded in and interacting with the reality of society as a whole (See, for example, Christensen and Lægreid (2007), and the United Nations (2014)). What is proposed is a broad 'open governance systems' strategy going forward to 2020 and beyond. Such a strategy would attempt to develop the policies and tools to put into practice an open governance vision, underpinned by appropriate research.

Although there are significant barriers to, and dangers resulting from, an open governance systems approach (see Section 8 below), it is clear that the public sector can become much more efficient and effective if all parts of it share and pool the assets, resources, data, etc., which each needs. For example, public administrations could share data and employ data analytics to compare and identify similar locations, user groups and/or services through analysing socio-demographics and service use and impact. Government clouds, whether public, private or hybrid, could facilitate this. This will enable each public administration, or groups of them, to take an evolutionary approach to learning and building good practices, what works and what doesn't through shared policy modelling. They will be able to compare, rank and simulate between similar contexts and/or through similar strategies. This might also cover, for example, common service lists, common processes and interactions, shared metadata standards and shared business models, and indeed this is already starting to happen in Europe.[5] Different parts of the

[4] See the OECD's Observatory of Public Sector Innovation: https://www.oecd.org/governance/observatory-public-sector-innovation/events/ (accessed 30 January 2015).

[5] There are already good examples, like the ESD (Effective Service Delivery) network (www.esd.org.uk: accessed 30 January 2015) which has a membership of over 23,000 local agencies and authorities in the UK and has developed a range of toolkits and shared services for collaborative working and for evidence-based improvements of locally delivered services. It now has partners across Europe and is fast becoming a new standard for local e-government business models. The ESD network enables local authorities to develop locally relevant services whilst sharing building blocks of functionalities and service types with each other where there are common needs, thereby saving effort and resources.

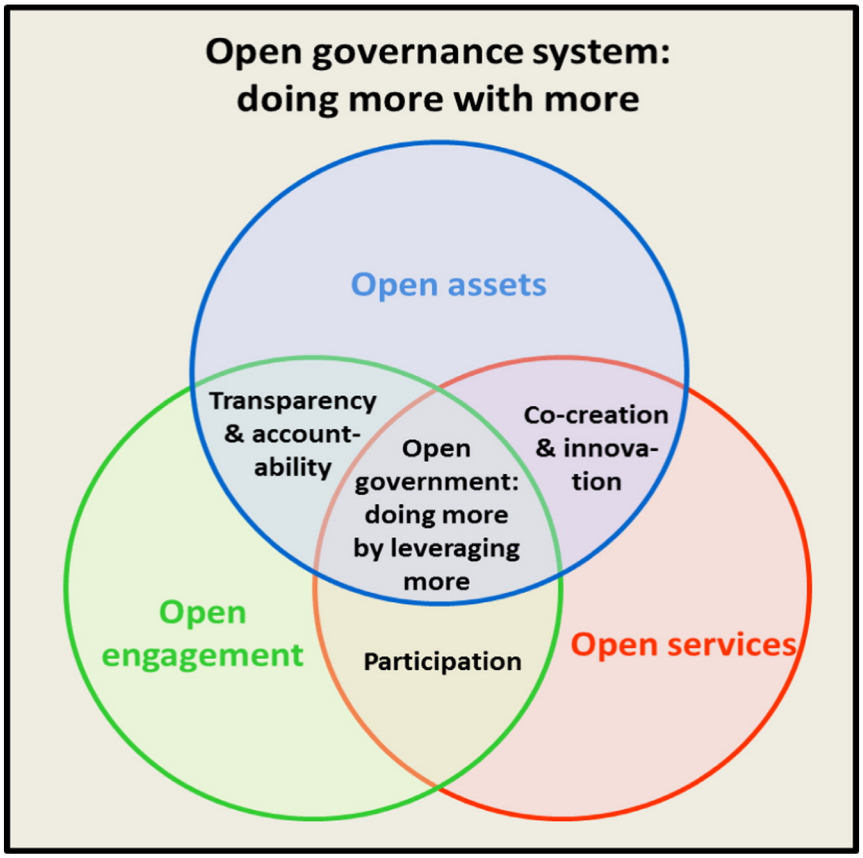

Fig. 2. The open governance system. Partially based on David Tallan's blog: http://www.govloop.com/profiles/blogs/three-dimensions-of-open-government (Accessed 21 April 2013).

public sector will also be able to collaborate in presenting a common and joined-up face to users and other external actors.

In the following three sections, the three main components of open governance systems as depicted in Fig. 2 are examined.[6]

4. Open assets: sharing, collaboration and co-creation

As described above, a major resource for open governance systems consists of sharable and exchangeable assets derived from and generated by all societal actors including the public sector, where the latter will often have the major role in orchestrating and deploying them as efficiently and effectively as possible or ensuring this takes place, to produce public value. The range of potential assets, asset pooling and asset sharing has been mentioned above, as has the 'sharing economy'. A new important trend, beyond the sharing of existing under-used assets, is their use for the collaborative creation, innovation and production of new products, services and other assets. This 'collaborative commons' is already underway starting with 'pro-sumers' (individuals who are both producers and consumers) mainly in the digital sector, but is now rapidly expanding into the collaborative innovation of physical goods and services. Indeed, an important driver of this trend is the process of integration between the physical and the virtual worlds, for example around 3D printing, audio-visual, virtual reality, artificial intelligence and immersive spaces. This virtual-physical interface seems to have huge potential to generate new economic and social value resulting in new products, stronger businesses and social growth drawing on the full range of monetizable and non-monetizable assets (Rifkin, 2014). An important underpinning of the sharing and collaboration commons is the trend towards 'co-creation', originally conceived as a business strategy for identifying new forms of customer engagement, it is being increasingly applied in other environments. Co-creation is understood as the active flow and exchange of ideas, information, components and products across society (academia, government, business, civil society and citizens) which allows for a better understanding of, participation, engagement and empowerment in, policy development, creating and improving services and tackling systemic change. Co-creation encompasses co-innovation, co-configuration, and co-production of products, services and content, for example through modularisation and digitisation, the role of social entrepreneurs in these new processes, and creating platforms for creative organisations, such as around 'standard toolboxes' for niche needs or markets.

Currently, however, the main open assets being generated and used by both public and non-public actors is so-called 'big data' as the very large and increasingly massive amounts of data being collected and created, and especially open government data (OGD). There are many sources of big data which can be mixed and mashed by governments and other actors to create public value.[7] Many governments, especially at regional and local levels, are still struggling to come to terms with the meaning and value of opening their data, let alone how best to do so, and have not yet begun to think about the other assets they can share, create or help manage. This challenge, as well as the opportunities which flow from this, will be dramatically compounded in the years ahead as we merge the now familiar Internet of Communication

[6] These following three sections are not intended to be comprehensive reviews given that the purpose of this paper is only to demonstrate their role within such systems as well as introduce relatively new approaches as part of this argument, so the reader is referred to other literature if such full reviews are required.

[7] The work of Global Open Data Initiative (http://globalopendatainitiative.org: accessed 30 January 2015) and the Open Government Partnership (http://www.opengovpartnership.org: accessed 30 January 2015) illustrate many of the issues around open data and other open assets used by governments and others.

with the Internet of Energy and the Internet of Logistics, to form the Internet of Things (Rifkin, 2014).

5. Open services: mass customisation and design thinking

Public services delivered or enabled by ICT need to focus increasingly on user empowerment and creating public value for the user as well as the wider society. One of the main drivers is the trend of mass personalisation for individuals, although a better term is arguably 'mass customisation' as this, in principle, envisages that every service, product, facility, piece of content, etc., is tailored precisely to fit a very specific customer or recipient need, whether individuals, groups, places, etc. One of the main benefits of this, apart from being offered a precisely designed service or product, is that all non-relevant information, processes and materials are stripped away thus making the service as simple as possible.

The notion of mass customisation originally came from Pine (1992) in his observation and prediction that, whilst the 20th Century was in economic terms the era of mass production starting with Henry Ford and the innovation of the production line turning out standardised products within increasingly large top-down organisations, the 21st Century would flip this concept on its head and become the era of mass customisation. Products and even services would only be created once individual customers had decided what they want and placed their order, so there would be no need for large inventory holdings and this would release capital to cut costs and innovate. All this could only be achieved by using ICT to knit together the value chains in super-fast time so as not to keep customers waiting. The first significant demonstration of this was Dell Computers, established in 1984, which developed an innovative business model termed 'build to order' based on the idea of the 'cash transfer cycle'. This means Dell gets paid upfront by the customer to put together a more or less unique order largely designed by that customer. This is a win-win for all. Dell gets free working capital (one estimate says it gets 32 days to play with customers' money before it has to pay its suppliers – Pine, 2013), and it has no capital tied up in inventory. The customer gets a machine within a matter of weeks perfectly designed to his/her own specification. All this is carried out in smaller, flatter or at least more networked organisations.

Although mass production remains the dominant business model, mass customisation is gaining ground enabled by ICT across an increasing number of sectors and for both products and services. The main challenge is not the technology but organisational adaptability and the mindset that needs to drive this. Joe Pine famously said "customers don't want choice – they want exactly what they want". (Reported in Pine (2013)). Seemingly a flippant statement, this is in fact very profound. Of course most customers do not immediately know "exactly what they want". However, this implies that, rather than give them a choice of a few standard off-the-shelf goods or services so they have to confirm to something pre-determined, the producer should enter into an on-going conversation and dialogue with the user to determine and agree what is needed to precisely meet their specific and typically unique requirements. And, when products are leased rather than purchased, this allows them to be adapted in near-real time as the user's need change, something hardly possible when the user fully owns the product and the producer has no further interest or responsibility in it. In principle, these new business models apply just as much to public services as to computers, and perhaps more so given the multifarious and interrelated needs of each individual across a range of service areas.

According to Millard (2011) mass customisation in public services supported or driven by ICT can result in three types of service as we presently see it. First, ICT can enable government to observe and analyse societal developments right down to individual behaviour using the vast amount of data available to it. Second, citizens or businesses, either individually or in communities, groups or localities, as well as through intermediaries of various types, can be empowered to select or create their own services. Users are likely to be expert in what their problems are as only they possess the fine grained knowledge about what they really need. The third type of service approach enabled by ICT is the emergence of 'everyday' and location-driven services, based largely on mobile smart phones using GPS, although web-based services are also relevant. Such services are offered or created depending on where users are, as well as who they are and what they are doing, and can respond and customise the service in real time. These different service approaches also represent different combinations of push and pull services for mass customisation, i.e. government pushing services to individuals it knows, or think it knows, they want, and/or empowered users pulling services they know, or think they know, they want.

An interesting example of where both push and pull are combined is the Taiwan "e-housekeeper" approach (Linders & Wang, 2013). Here, the responsible public authority pushes services and service combinations to users knowing who they are, whilst users can also pull from a list of a possible 203 services, such as related to employment, getting married, paying taxes, and healthcare, after which they are notified by service updates, information, requests, etc. This takes place mainly on a local level, so both push and pull are largely location-driven and interfaced through an individual's 'life dashboard' and 'life map', also to mobile devices.

Another main driver of open services is the incorporation of behavioural approaches and design thinking into creating, delivering and using services. First, it is important to recognise that users are already dramatically changing their behaviour when accessing and using e-government services. The evolutionary approach to making such services available has been the abandonment of 'many stops' and a move to the 'one stop shop' (typically rather complex) navigation portal, which now dominates. However, studies and early experience show that, rather than using sophisticated navigation, people are increasingly deploying advanced search tools with autocomplete and predictive search results to get direct to the service they want in one or at most two clicks, as for example in Singapore's e-Citizen portal.[8] In other words, users are finding and accessing services (whether commercial, personal or public) by sophisticated online search and hardly using expensive government portals. Ben Terrett, Head of Design at the Government Digital Service, in the Cabinet Office for the UK Government, stated that only 15% of UK eGovernment users came through the Direct.Gov portal (now replaced) with most of the others using search engines to get direct to the service they need.[9] In response, governments also need to change their behaviour and improve the quality and impact of e-services, for example by exploiting the full advantages of cloud-based (often co-created) services, big data flowing through all the internets, data analytics, plus social media and mobile. As shown above, a few governments are now moving to the concept of customised push/pull services in and from the cloud. As one of the leaders, the UK provides an early example of such strategies based on a 'whoever, wherever, whenever you are' approach, implemented through, first an alpha and later a beta version of their new portal, both of which were fully open to public scrutiny, and finally fully launched in the summer of 2013.[10]

An important and powerful new component of these approaches is the application of 'design thinking' to both traditional and e-services, which is already being adopted in a number of countries. Design-led innovation in government is a holistic approach that attempts to understand the 'full architecture of a problem'. It is neither a wholly new concept and set of methods and tools, nor is it yet a well-established and widespread discipline. Instead it is an evolving and experiential practice pushing the boundaries, learning, experimenting and applying successful approaches as it develops. A number of theorists and practitioners, see design thinking as a paradigm shift away from traditional

[8] http://www.ecitizen.gov.sg (accessed 30 January 2015).
[9] http://digital.cabinetoffice.gov.uk/2012/01/19/designing-govuk/ (accessed 30 January 2015).
[10] http://www.gov.uk (accessed 30 January 2015).

top-down, expert- and often technology-driven service design traditions. Instead, design thinking has become centred around a number of tenets such as the need to constantly challenge the status quo, see everything as an experiment, value the target beneficiary (the citizen or business in the public service context), and the paramount need to be concrete and practice-based. In this context, a growing repertoire of techniques is evolving and being applied in practice, including those borrowed from the ethnographic and anthropological traditions, plus observation (shadowing), contextual dialogue and interview, retrospective review, cultural probing, creative ideation processes, and the visualisation and modelling of service prototypes (Bason, 2010).

Apart from the UK, other countries are also experimenting with design thinking and related approaches for e-services. For example, in the Finnish strategic design approach to public services like health, education and social services,[11] and Singapore's Design Thinking Unit, in the Prime Minister's Public Services Division. In principle, all relevant aspects of a user's approach to and use of a service are taken into account in design thinking, for example by the Danish government's Innovation Unit, MindLab,[12] where ethnographic-inspired user research, creative ideation processes and other experimental approaches, as well as the visualisation and modelling of service prototypes, are all undertaken.[13] Two of the main techniques employed are building 'personas' as rich archetypal descriptions of specific users that enables a deep understanding of the service demand side, and developing 'service journeys' as a visual map of the individual's actual service interactions over time allowing a clear understanding of the supply side. Matching relevant personas with the corresponding service journey can be a powerful basis for analysing what actually happens and for designing something better. Design thinking can be applied across all channels, including electronic and mobile services. To give an idea of impact, the UK's new eGovernment portal[14] recently won a prestigious design award, normally focused on industrial design, based on such principles.[15]

There are also several complementary approaches to design thinking which overlap and are likewise starting to have an impact on service creation, design and use. First, the so-called 'nudge' approach which recognises that, although traditional attempts to change behaviour by regulation are of course important, they just as often fail and may even provoke opposite responses (Thaler and Sunstein, 2008). Nudge theory focuses on changing peoples' behaviour without binding regulation or legislation, and has done so with some success. It directly uses the insight that a very powerful influence on an individual's behaviour is linking this to what other people are doing. Nudge theory thus recognises the power of social networks and social norms in behaviour patterns. At base, nudge attempts to observe and map how people make their choices and then test small changes in the way choices are presented to them. In this way, people are nudged into leading better lives by reconstructing their 'choice architecture'.

A second complementary approach is 'scarcity' design which proposes developing customised systems around people, especially those with serious shortages of financial and time resources and who thus are often vulnerable individuals in poverty. These systems should be designed to make their lives as easy and as simple as possible so they can focus on solving their own problems of scarcity rather than grappling with a complex system (Mullainathan and Shafir, 2013). This approach often involves creating a customised 'cockpit' of information, controls and supports which typically need ICT for coordination and may also become a 'platform' or 'dashboard' if ICT is deployed as the user interface. A well-designed cockpit aims to provide the user with increased mental 'slack', by freeing up people's otherwise limited 'cognitive capacity', to make it easier for them to juggle the whole range of public and other services they need, such as education, health, childcare, employment support and paying bills.

6. Open engagement touches the whole public sector

Open engagement is an important pillar of open governance systems in which all legitimate actors are invited to engage in the activities of government as long as this engagement is itself open and enhances public value. Most research and practice over the last ten years has focused on e-participation as the use of ICT for citizen involvement in political decisions and public policy making at both local and national levels, as well as on the possibilities of e-voting. However, this is a rather narrow view of involving people in the activities of government, being mainly related to e-democracy, i.e. enhancing the democratic process using ICT. Results have so far been mixed and perhaps disappointing overall given the high expectations of even just five years ago. Ironically, this has perhaps led to reduced enthusiasm for e-participation funding at the very time that technology advances in areas like social media and mobile started to overcome the obstacles. It is also now more apparent that the ICT-enabled public sector allows a much wider vision of open participation as open engagement, and this is making significant impact through diverse experiences around the world, particularly but not exclusively at local and regional levels. In addition to participation in public policy and decision making as part of the overall democratic process, open engagement is concerned with service design and delivery, for example through co-creation, which means that citizens and other legitimate actors are able to establish a broad engagement and empowering relationship with government. Actors can also become engaged in other areas of public sector activity, such as the processes, workings and arrangements of the public sector and public governance more widely; planning and development issues (for example through participative budgeting and where scarce resources are allocated); dispute and conflict resolution; and in managing societal assets, including land and buildings.

An increasing amount of good practice demonstrates that an open engagement relationship between government and citizens is most successful when applied in a joined-up manner across some or all of the above areas and government functions (education, health, transport, law and order, care, environment, etc.), and when intimately integrated with and complementary to non-digital engagement methods. Although most success is still mainly at local and regional levels, the evidence shows that open engagement works best when it becomes a seamless part of a government's broader policy of openness, transparency and collaboration. It should be continuously woven into a citizen's experience of the public sector, built into the fabric of all aspects of the way in which he or she interacts with the authority (Millard, 2009). Recent examples include crowdsourcing legislation such as the new Icelandic constitution[16]; the city of Hamburg's transparency law created by citizens/civil initiatives using a public wiki[17] and then adopted by government; and the BundesGIT where all federal laws in Germany are being made available on an open source (code) platform in machine readable format so they can be widely developed by experts as well as citizens leading to legal amendments and new versions.[18] The issue here is does such crowdsourced legislation really lead to better law as well as higher acceptance? Does it improve trust and support anti-corruption and better accountability?

[11] Sitra, the Finnish Innovation Fund: http://www.sitra.fi/en. (accessed 30 January 2015).
[12] http://www.mind-lab.dk/en (accessed 30 January 2015).
[13] http://www.ssireview.org/articles/entry/design_led_innovation_in_ government (accessed 30 January 2015).
[14] http://www.gov.uk (accessed 30 January 2015).
[15] http://designmuseum.org/exhibitions/2013/designs-of-the-year-2013 (accessed 30 January 2015).
[16] http://www.slate.com/articles/technology/future_tense/2014/07/five_lessons_from_iceland_s_failed_crowdsourced_constitution_experiment.html (accessed 30 January 2015).
[17] http://www.nyc.gov/html/unccp/gprb/downloads/pdf/Hamburg_PI.pdf (accessed 30 January 2015).
[18] http://okfnlabs.org/blog/2012/12/13/bundesgit-german-laws-on-github.html (accessed 30 January 2015).

Research by the World Bank (2013) provides evidence from a number of examples. A new e-service called *Streetmix*[19] is helping to empower citizens by enabling them to become architects with an easy-to-use street-building platform. Developed by Code for America,[20] the site greets users with a colourful representation of a typical street, split into segments of varying widths. Citizens, as designers, can then swap and change each piece into roads, cycle paths, pedestrian areas, bus stops, and other amenities. Citizens can create their own perfect high street or use the exact measurements of their own neighbourhood to come up with new propositions for planned construction work. The Kansas City's Bike Walk KC[21] has utilised the platform to show how new bike lanes could figure in an upcoming study of traffic flow in the region. New Zealand's Transport Blog[22] has presented several alternatives to current street layouts in Auckland. Streetmix's easy-to-use visualisation tools help amateurs present their ideas to local authorities in a more coherent way, potentially increasing the chances of politicians hearing calls for change.[23]

In Brazil, *Rio+*[24] is a platform where any citizen can create a project for Rio de Janeiro, to any scope provided it will improve the city. Presently, it has a huge range of ideas listed, from mobile apps to tunnels connecting areas of the city. Rio+ is easy to use, with projects split into categories and not too many details required for each listing. Just enter the idea and go! Once listed, *Benfeitoria*,[25] along with partner organisations, will initiate a feasibility study, selecting the best ideas and identifying resources and partners needed to make it happen. The remaining projects then go to the jury (i.e. they'll be voted for online and by the City of Rio) where people can decide on the best design in each category. Once the winners are chosen, the City is responsible for realising each of the projects, after which they will be monitored so that the impact can be measured, and in the future some may become public policy and be expanded. Singapore's *REACH* project (reaching everyone for active citizenry @ home) is an initiative of the Singapore government, which encourages and promotes public participation in shaping government policies. The government provides a wide variety of traditional and new media channels for citizens who are interested in engaging with the government, such as public forums, dialogue sessions, SMS, telephone, email, Facebook and Twitter. The three key roles of REACH are: gather and gauge sentiments on the ground; reach out and engage citizens; and promote active citizenship through citizen participation and involvement.[26]

Kibera in Nairobi, Kenya, is one of the largest slums in Africa. Independent of the city authorities, a team of social activists started to develop the Map Kibera community information project[27] in October 2009 as an interactive grassroots map. This appears to be the first ever comprehensive multifunctional interactive community map (ICM), and took place in a developing country, perhaps because acute need drives the people involved to innovate in entirely new ways which could be termed an example of inclusive or frugal innovation. Although many civil organisations and international development organisations had been present and active in Kibera for many years, it had largely remained a blank spot on the map. This lack of openly available geospatial data and other public sources of information about the slum led a group of social activists to create Map Kibera. The underlying idea is that without basic geospatial knowledge, it is impossible to conduct an informed discussion on how life conditions in Kibera can be improved. The Map Kibera team demonstrated that the provision of such information rapidly facilitated better coordination, planning, and advocacy efforts within the community, and between the community and the government. In the first stage of its operation, the Map Kibera team recruited volunteer community mappers who reside in Kibera to map "points of interest" in the slum, using simple GPS devices and uploading the collected data to OSM. The mappers collected data about the location of clinics, toilets, water points, places of worship, and more. On top of this basic geospatial information, the mappers added a "storytelling" layer, capturing personal accounts, stories, and news of Kibera residents. As part of the second stage, Map Kibera deepened its coverage of life conditions in the community, and collected more contextualised information in the areas of health, security, education, and water/sanitation. At this stage the city authorities saw the importance of what was happening and started to use the map and to cooperate with residents for further enhancement. The Map Kibera team also introduced the Voice of Kibera website—an online news and information-sharing platform for the Kibera community (World Bank, 2012).

Because open engagement is new, especially as enabled by ICT, a good approach for government and other actors is to make many small experiments with existing tools. This is much better than a few big initiatives which if they fail waste resources and reduce motivation. It relates to the need for bottom-up, user-driven engagement. For example, what are the drivers and incentives for citizens to engage? Immediate feedback to citizens from government might be an incentive to get citizens more engaged but there are likely to be others. Design thinking could also be deployed in this context.

7. The changing roles and relationships of the public sector

As demonstrated above and although the public sector can in principle create public value on its own, its potential to do so is greatly enhanced and extended by direct cooperation with other actors, or by facilitating public value creation by other actors on their own. In other words, the public sector does not have a monopoly on public value creation, but it does have in most situations the prime role in ensuring that public value is created. Existing and new ICT is transforming the ability of government to act in these ways. This also demands that the public sector adapts its roles and relationships to address both the global challenges it and society faces as well as to cooperate more extensively and deeply with other actors. Five of the main types of role and relationship changes needed and already starting to be seen are sketched in Fig. 3 and outlined below.

First the public sector needs to start acting as a broad open collaboration platform supported by ICT, at least for some of its functions. In this context a 'platform' means an open environment and ecosystem with clear frameworks, guidelines, resources and supports which invites all actors to collaborate in producing public value as well as value which directly benefits the actors individually. These actors include companies, SMEs, civil society organisations, communities, groups and individuals, as well as hackers, designers and artists. This is already happening in some places, for example the San Francisco City Government is one of the leading proponents of government as a platform, promoting "government as a launch pad" in its "a start-up called government" initiative (San Francisco, 2013). Resources government should provide itself, as well as elicit from other actors, include data, applications, knowledge, content, capacity and service building blocks. To enable this collaboration to happen, the government should pool and share its infrastructures and processes. It should encourage collaborative use through hackathons, discussion fora, blogs, consultation, support and advice, brokerage, good practices, arbitration, workshops, events, etc. It should provide standardised modules for basic functionalities which are cross institutional so that external actors do not have to contend with unnecessary differences, but which can easily be used, reused and combined in new ways to address specific needs.

[19] http://streetmix.net (accessed 30 January 2015).
[20] http://www.codeforamerica.org (accessed 30 January 2015).
[21] http://bikewalkkc.org (accessed 30 January 2015).
[22] http://transportblog.co.nz/(accessed 30 January 2015).
[23] http://voakl.net/2014/02/08/more-manukau-street-mix-attempts (accessed 30 January 2015).
[24] http://riomais.benfeitoria.com (accessed 30 January 2015).
[25] https://beta.benfeitoria.com (accessed 30 January 2015).
[26] http://www.reach.gov.sg (accessed 30 January 2015).
[27] http://mapkibera.org (accessed 30 January 2015).

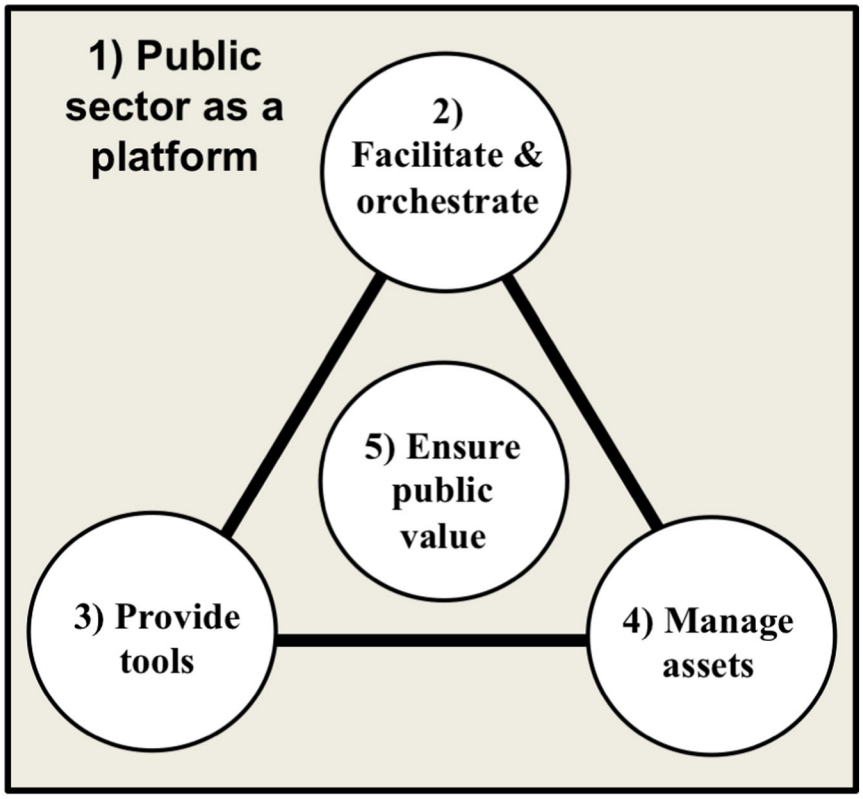

Fig. 3. Some new roles for the public sector.

By providing this enabling platform, government can support a range of actors to collaborate with each other, as well as with government itself, to generate public value. Using ICT, groups can easily and freely form, cooperate, act and dissolve: the platforms are free and the costs are essentially zero. Citizens, communities, civil groups, as well as businesses, are themselves changing from passive consumers of data, content and knowledge to active producers and pro-sumers. For example, citizens share more and more with each other on social media platforms and tend to consult other citizens, rather than the government for advice – they increasingly use the 'social signal' and 'social search' to organise and improve their lives. Government thus needs to recognise the value of collaboration and crowdsourcing. Although government should mobilise its own resources and talent better, there is always more relevant talent outside any organisation (including government) than inside. Just as a new vision in business sees everyone as (in part) an enterprise, part of the new vision in government sees everyone potentially as a resource with assets to contribute in creating public value.

The public sector as a platform facilitating public value creation in the most efficient and effective way possible will support an ecosystem of actors with changing roles and relationships. There are already numerous examples, including where other actors have 'usurped' the erstwhile role of government using ICT. For example, 'Fix-My-Street' in the UK developed by the civil society organisation MySociety not by government[28]; noise measurement around Amsterdam Airport in the Netherlands undertaken by residents in the flight path[29]; Microsoft's 'health vault' storing citizens' health records in the cloud (https://www.healthvault.com); and the website 'Patients know best' which is a privately provided service enabling patients to control their own medical data when negotiating with public health authorities about their treatment.[30] These are examples where other actors have seen gaps in what government is doing and stepped in without always being invited to do so. Clearly, however, more formal collaboration between government and other actors has greater potential as well as being more challenging. For example, in the UK with the new e-government portal mentioned above launched in 2013 and developed in cooperation with former hackers.

Fig. 3 shows, secondly, that by establishing collaboration platforms at many levels, government's role changes to one of enabler and facilitator, as well as arbiter, coordinator, and regulator for the activities of others in delivering public value. Government is there to ensure public value is created by the most appropriate means in terms of what works best in a given context and for given needs. As described above, this may involve government having a major direct role or a minor one in creating public value, but even in the latter case government needs to be a facilitator and orchestrator to ensure that it does. The third new role for government is to provide tools, guidance and incentives for collaboration. It is clear that although the participatory, bottom-up co-creation of services can create more effective and personalised experiences, the process can increase the burden on citizens to participate. It has often been noted that e-government, when leading to user self-services, is a way of outsourcing some of the work government had previously done itself to the user. Co-created, or even fully user created, services takes this much further. Making more efficient, cost-effective public services must mean more than assuming citizens will contribute time and other resources to create their own services. Instead, government should provide structured guidance within which service co-creation can happen. 'Guided' support will reduce the burden on citizens of participating in this way whilst maximising the return for public administrations and citizens alike. Government should also provide incentives by highlighting the benefits citizens will derive from the co-creation process, giving them more power to make decisions about these services in adapting them to their needs, and supporting them with relevant data and other resources.

[28] https://www.fixmystreet.com (accessed 30 January 2015).
[29] http://www.sensornet.nl/english/ (accessed 30 January 2015).
[30] https://www.patientsknowbest.com (accessed 30 January 2015).

Fourth, government has an increasing role in managing societal assets. Especially in the context of Europe's pressing global challenges, there is a need to identify and deploy all the assets and resources available in society but which are often not used or are under-used. Such existing assets, including government's own, can for example consist of finance, people's time and expertise, organisational structures and competences, networks, data, things, places, buildings, spaces, vehicles, and infrastructures. The role of government in using the power of ICT, perhaps in collaboration with other actors, is to identify, broker, match, orchestrate and coordinate assets which can be shared and converted into public value impacts, instead of, if unused, go to waste. There are already many non-government actors launching mainly bottom-up and small scale examples of ICT-based platforms which undertake such a role, for example the Shareable platform and movement based in the USA[31] (Gansky, 2010). However, government has in many situations greater power and scope to do this linking across other actors as well as sharing its own assets internally and this is both a growing challenge and opportunity. This would involve widening the scope of ICT-based content management systems to become asset management systems.

Fifth, as outlined above, the purpose of seeing the public sector as a platform is to ensure the appropriate creation and deployment of public value. However, just because government collaborates increasingly with other actors in producing public value, this does not necessarily imply that government becomes just one actor amongst many as it still needs to fulfil roles which other actors normally cannot. These include taking responsibility for overall quality standards and mechanisms for resource sharing and legal frameworks, even when these are statutorily delegated to other actors. Accountability for services and performance, and responsibility especially if things go wrong, is a critical issue. Others are likely to include data protection and security. In this context, it should also be remembered that innovation and change in the public sector is not the same as in the private sector, as government cannot pick and choose its customers and government services cannot afford to 'fail' in the same way as in the private sector. Given that government is the only institution democratically accountable to the whole of society, it alone can ensure sustainable and balanced public value where all segments of society benefit and where trade-offs are seen as fair and proportionate. This means that the general sustainability of the governance system is important. Government provides longer term stability and continuity which other actors cannot do, and this is necessary to enable people and communities to live stable lives, as well as for the market to have confidence that unpredictable governance changes will not upset their own innovation and investment decisions. A governance system with a short-term horizon encourages short-termism in business and an unstable society. The public sector is becoming, instead of always the sole actor, one player amongst many albeit with unique responsibilities in new forms of open and collaborative governance.

8. Open governance systems: barriers and dangers

The evidence and analysis presented in this paper also need to be subjected to some caution and caveats. At this stage, this is not a main objective of this paper, but they at least need to be recognised for further research and consideration. There are at least five main types of barrier to developing open governance systems and the sharing and openness this implies. First, lack of technical, semantic and organisational interoperability between government organisations, so that it is not possible operationally to share or exchange data. Second, management tends to be reluctant to share data and other resources as this may be considered as risky and giving up own control, and where the necessary individual as well as organisational skills, awareness and attitudes are not in place. Third, the need to balance sharing, openness and transparency with privacy, data protection and security where there are potentially huge threats.

Fourth, in changing and adapting the roles of government as described in this paper, there are also real concerns that such changes will result in new types of risk, for example related to loss of control and blurred accountability and dis-integration of services. With many providers and many personalised needs to be met, systems become highly complex, and quality standards are more difficult to determine and maintain. Fifth, new digital and related socio-economic divides can become more acute, as the already better endowed and more competent segments of society are able to reap the benefits of openness and of ICT more readily than the more vulnerable at risk of exclusion. However, government as the only institution backed by democratic accountability, is best placed to address these risks and will need to retain basic roles including setting overall quality standards, providing mechanisms for resource sharing, and determining legal frameworks.

9. Conclusion

This paper has attempted to move the e-government debate forward from a preoccupation with lean and small governments which "do more with less" to examine the potential for open governance systems to "do more with more" through much better leveraging and orchestrating of its own assets together with the assets of non-government actors, and by collaborating closely with them. Despite the substantial evidence that this is both already happening, and indeed that it needs to happen more in order to successfully address the global challenges, there remains much speculation, uncertainty and disagreement on the way forward. More research is required in these and related areas as this paper has only outlined some of the main issues and developments, but this needs to take place widely and involve all of society's actors.

[31] http://www.shareable.net (accessed 30 January 2015).

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